TOWN OF ISLIP
DEPARTMENT OF PLANNING AND DEVELOPMENT

Eugene J. Murphy, A.I.C.P., Commissioner

ACCESSORY WIND ENERGY TURBINE
FREQUENTLY ASKED QUESTIONS (FAQ)

The Town Board recently amended the Zoning ordinance in an effort to allow accessory wind turbines as a supplemental source of power for properties across the Town. This action was spurred by many local constituent requests for turbines along with the growing larger concerns regarding global climate change and our reliance on fossil fuels as a primary energy source.
As with all public policy changes, a careful analysis was done to measure any impacts that accessory turbines may have on neighboring properties. The resulting ordinance strictly regulates the height, location, and noise of any turbine. Some of the following information has been gathered from the American Wind Energy Association (AWEA).

1) How do accessory wind turbines work?
A wind turbine collects kinetic energy from the wind and converts it to electricity that is compatible with a home's electrical system. In a normal residential application, a home is served simultaneously by the wind turbine and a local utility. If the wind speeds are below cut-in speed (7-10 mph) there will be no output from the turbine and all of the needed power is purchased from the utility. As wind speeds increase, turbine output increases and the amount of power purchased from the utility is proportionately decreased. When the turbine produces more power than the house needs, the extra electricity is sold to the utility. All of this is done automatically. There are usually no batteries in a modern residential wind system. However, the current Town ordinance does not prohibit the use of batteries for residential or commercial/industrial applications.

2) What is the procedure for obtaining a building permit for my turbine?
A customized application packet will soon be available from the Building Permits Section located at 1 Manitton Court, Islip (directly behind Town Hall). This application form will also be available from the Town's website at: www.townofislip-ny.gov. The submission checklist includes: a completed application form signed by a certified architect or professional engineer, a fee of $15, 3 copies of a current survey showing the proposed location of the turbine, a side elevation drawing showing overall turbine height, narrative prepared by an architect or professional engineer which justifies the height necessary for effective operation, and schematic drawings of the turbine showing compliance with all New York State building, electrical, and mechanical codes. Said drawings shall also show fail-safe or mechanical braking systems. Manufacturer certifications may also be required.

After being certified as complete, the application will go through a zoning review, and will be reviewed by the building plans examiners.

3) What is the procedure for obtaining a certificate of occupancy or use for my turbine?
According to the ordinance, the Town may certify a turbine with any or a combination of its own inspectors who are duly certified by New York State. In addition, the Town may accept documentation from third party inspection companies which specialize in turbine certification.

4) Where can I find turbine manufacturers?
There exist a great range of turbine manufacturers and models. Smaller residential or accessory style models are available from: Ampair (Microwind), Broadstar, Swift, WindTerra, or Marquiss. This is a small list of turbine manufacturers and is not exhaustive. Much additional information is available on the Internet. The Town of Islip does not endorse any particular turbine model. However, particular models that undergo an approval process may be fast-tracked in subsequent applications.

5) Will a small wind turbine save me money?
The amount of money a small wind turbine saves you in the long run will depend upon its cost, the amount of electricity you use, the average wind speed at your site, and other factors. Some manufacturers claim that a wind turbine can greatly lower your electricity bill. The Town of Islip strongly encourages applicants to thoroughly research the average wind speed and other environmental factors (such as surrounding tree or roof barriers, turbine height allowed by ordinance, etc.) for your particular property. A small turbine can cost anywhere from $6,000 to $23,000 installed, depending upon size, application and service agreements with the manufacturer.

6) What if I need a height or setback variance for my turbine?
From an engineering standpoint, typically the higher a wind turbine is, the greater its power output. However, in an effort to appropriately mitigate the potential for adverse visual impacts on adjoining properties, the zoning

ordinance was created with height and setback restrictions. Proposals which do not meet these restrictions must apply for variances from our Zoning Board of Appeals. Applicants should not expect variances based solely on power output or efficiency arguments. In general, larger lots may be more suitable for turbines. It should be understood by the public that not all properties may be able to accommodate an accessory turbine. In those cases, solar energy panels, attached to a roof structure, may be a great alternative to a wind turbine.

7) What size turbine would I need for my home?
Nationwide, homes use approximately 9,400 kilowatt-hours (kWh) of electricity per year (about 780 kWh per month). Depending upon the average wind speed in the area, a wind turbine rated in the range of 5 to 15 kilowatts would be required to make a significant contribution to meet this demand. The economics of a wind system are very sensitive to the average wind speed in the area, and to a lesser extent, the cost of purchasing electricity. As a general rule of thumb, if economics are a concern, a turbine owner should have at least a 10 mph average wind speed and be paying at least 10 cents/kWh for electricity. According to the National Oceanic and Atmospheric Administration (NOAA), the current average wind speed in the Town of Islip is 9.7 miles per hour. Speeds reach, on average, 10.5 mph in March and are lowest in August (7.4 mph). Certain locations within the town may experience much higher wind speeds while others do not. In order to measure these speeds, scientists or engineers may use an anemometer, shown in Figure 1. Applicants may wish to contact various turbine manufacturers to learn how to obtain accurate wind measurements for their property.

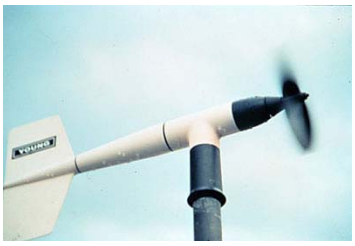

Figure 1 - Credit: NOAA

8) Will it help the environment if I install a wind turbine at my home?
Yes. Wind turbines usually produce no "net" pollution and by using wind power you will be offsetting pollution that would have been generated by your utility company. Over its life, a small residential wind turbine can offset approximately 1.2 tons of air pollutants and 200 tons of greenhouse gases (carbon dioxide and other gases which cause climate change). Applicants are urged to research the net "carbon footprint" of their desired turbine model--ie. Will the turbine save more energy over its lifetime than the energy used to manufacture it?

9) Do wind turbines make noise or interfere with TV reception?
Small wind turbines do make some noise, but not enough to be found objectionable by most people. A typical residential wind system makes less noise than the average washing machine. Wind turbines do not interfere with TV reception. The ordinance prohibits noise in excess of 55 decibels or the sound of a quiet residential neighborhood. Many turbine models produce much less noise than 55 decibels.

10) Will my utility allow me to hook up a wind generator?
Federal regulations (specifically, the Public Utility Regulatory Policies Act of 1978, or PURPA) require utilities to connect with and purchase power from small (less than 80 MW) wind energy systems. A wind turbine manufacturer should be able to help arrange the required utility company approvals.

11) Will I have to change any of the wiring in my house?
No. A wind turbine is easily retrofitted to virtually any home or commercial/industrial building without the need to change any wiring or appliances. In some cases, the utility will install a second utility meter to measure how much surplus electricity it is purchasing, if any, from the turbine owner.

12) What are some of the specific regulations for accessory wind energy turbines?
The actual ordinance itself will soon be available from: http://ecode360.com/?custId=IS0324 Refer to Section 68-420.9

Specifications:

a) Maximum height of *residential, office, or commercial* turbines (either towers or roof mount) are calculated at 42% of lot width up to a maximum height of 45'. Maximum height of *industrial* turbines are calculated at 50% of lot width up to a maximum of 70'.

b) Applicant must also provide evidence to justify effective height.

c) Turbines must be set back from side and rear property lines a distance equal to or greater than the turbine height.

d) Turbines may not produce more than 55 decibels as measured from adjacent buildings.

e) Turbines are *accessory* to primary structure and electrical output may not be shared by adjacent owners.

f) Turbines must be able to withstand wind speeds of up to 120 mph. Mechanical brakes or adjustable blade angle must cause turbine stall at higher speeds.

g) Moving parts of any turbine shall not exist lower than 15' from ground level.

h) Turbines are prohibited in any front yard.

13) Please contact the Department of Planning and Development at 631-224-5450 if you have any additional questions.